IN THE CLAIMS

1. (previously presented) In a method for producing a silicon-on-insulator structure including hydrogen implantation in a silicon wafer, chemical treatment of the wafer and a substrate, joining of the wafer and substrate, splicing and splitting of the wafer along a layer of the implanted hydrogen, the improvements wherein:

at least drying and removing of physically adsorbed substances from the surfaces of the wafer and substrate after the chemical treatment is carried out in a first low vacuum at a first moderate temperature such that the implanted hydrogen stays bound; and

the joining and splicing of the wafer and substrate and exfoliating along the layer of implanted hydrogen is carried out at a second low vacuum and a second moderate temperature the same as or slightly higher than the first moderate temperature such that the implanted hydrogen mostly stays bound.

- 2. (previously presented) The method according to claim1, characterized in that the hydrogen implantation is carried out through thermally grown oxide SiO_2 with a thickness of 5 to 50 nm.
- 3. (previously presented) The method according to claim 1, characterized in that the hydrogen implantation is carried out with H_2^+ or H^+ ions with doses from 1.5 to 15×10^{16} cm⁻² and energies 20 to 200 keV, respectively.
- 4. currently amended) The method according to claim 1, characterized in that a thermal annealing is carried out at 1100°C during for 0.5 to 1 hour after the splitting.

- 5. (currently amended) The method according to claim 1, further comprising a touch chemical-mechanical polishing (CMP) or thermal oxidation with following chemical etching with diluted hydrofluoric acid or a touch chemical-mechanical polishing (CMP) for removing an upper rough layer after the exfoliating.
- 6. (previously presented) The method according to claim 1, characterized in that a thickness of thermally grown oxide SiO_2 on the substrate is 0.01 to 3 μm .
- 7. (previously presented) The method according to claim 1, characterized in that the substrate is glass with a thickness about $500 \mu m$.
- 8. (previously presented)) The method according to claim 1, characterized in that the substrate is quartz with a thickness about 500 μm .
- 9. (currently amended) The method according to claim 1, wherein at least one of the first and second temperatures is 80 to 350°C with duration from for 0.1 to 100 hours and at least one of the first and second low vacuums is 10¹ to 10⁴ Pa.
- 10. (previously presented) The method according to claim 1, wherein at least one of the first low vacuum or temperature is the same as the second low vacuum or temperature.
- 11. (previously presented) The method according to claim 9, wherein at least one of the first low vacuum or temperature is the same as the second low vacuum or temperature.